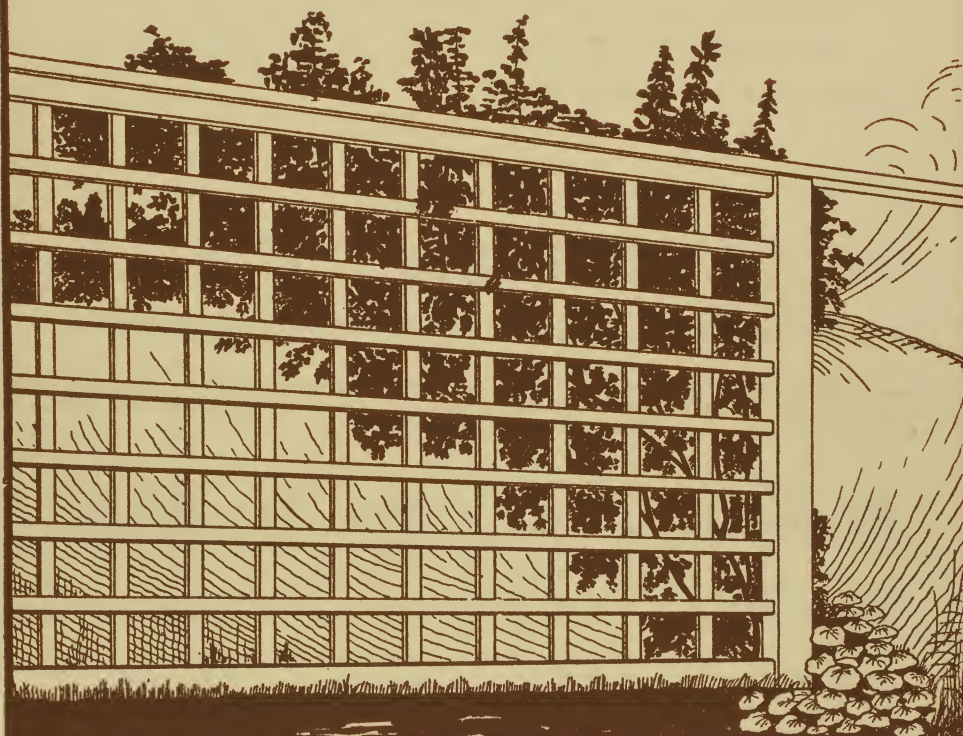


California Garden



IN THIS NUMBER

CYCLAMEN
OCOCANTHERA, SPECTABILIS WOW!
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TWELVE BEST ROSES
SYNTHETIC MANURE

FEB. 1926

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San Diego, Calif.

The California Garden

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POINT LOMA, CALIFORNIA, FEB., 1926

No. 8

CYCLAMEN GIGANTICUM CYSLAMEN PERSICUM ALPINE VIOLETS

Since the Azalia Indicas was excluded from import to U. S. A. no other plant has been found the rival of a well grown Cyclamen, and each year it finds more and more admirers. I can state with pleasure about Cyclamen, having grown that plant for twenty or more years, in Europe, as well as America. To my mind it has no companion as a pot plant, as to beauty and satisfaction for the lover of flowers. As to colors you can find most anything except blues (you get that without Cyclamen) therefore as a present for your friends, sick, sad or lonely, holiday greetings, it is always looked upon as a gem of flowers. Since the first introduction of the Persian Violet or Alpine Violet Cyclamen it has greatly improved as well in size of blossoms as in variety of colors. It originally came from the Persian Alps (from which comes the name Alpine Violets).

Since Hybridisers got hold of it until now we have gotten something really wonderful, both as to size of blossoms and to colorings therein. Cyclamen specialists are coming up here and there, Germany has been our leader in production while we have now some first-class growers here in America, as well as England. Points in success mean first quality seeds to plant, the best it is none too good. We never hesitate in paying for something that we know has instincts of superiority in it. Even the first cost may be a little higher. Never get seeds of anything that has not been hybridized and stood its test. Time and trouble cost money and make your hair turn more gray. It doesn't pay. With the seeds and your best care it requires about six months to have ready for market a real handsome plant. Sown in a shallow box in light, sandy soil, about $\frac{1}{2}$ inch apart, cover with glass and watch carefully with watering. About six weeks is required for the seeds to germinate with a temperature around 65% Fahr. Always keep Cyclamen growing, if they get a check you'll have no good ones. After the small plants have de-

veloped two or three leaves we transplant into other boxes (or flats), giving a space of about 2 to 3 inches. When fully established and they have filled their space, they are potted up in 2½ inch pots. Shifting them after pots have filled with roots, into 3 or 4 inch pots and again twice or three times during summer they should be repotted, never allowed too large a shift. As the Cyclamen always need constant care, it is very few growers that have real quality plants. Spraying at least three or four times a day during hot summer. Moist atmosphere is the requirements for development of well grown plants. Soil to start with about half leaf mould, half compost, adding as the plants get larger each shift a little heavier soil and using some well decayed cow manure or house peavings or bone meal. At all times never allow the soil to get sour, or you have your plants ruined. Plenty of drainage is a necessity. To keep a Cyclamen plenty of air and humidity means steady and vigorous growth, taking into consideration, however, that in our various regions of this country we may use judgment in proportion to the various conditions existing as to rain and sunshine. If a dry and sunny location it will not thrive, and must during summer have a light shade or the leaves burn up, and must as soon as fall and cloudy days appear have more attention. As to keep it too dark makes a spindly plant. Plenty of space between Cyclamen is a big factor in order to have well-shaped plants. Never allow them to become cramped during their growing period. Care must be taken not to have any insects, such as snails, cut worms, green fly and many other of all the mite is the most dreaded disease for Cyclamen. Once they get a hold nothing will cure, but quit growing them for a few years until the disease has disappeared. By spraying once or twice a week during summer with nicotine you can keep most diseases in check and always a prevention better than cure.

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MANY SNAKES DESERVE PROTECTION

Contrary to popular belief, most common snakes are neither obnoxious nor poisonous, says the Biological Survey of the United States Department of Agriculture. The prevalent dread of snakes is due largely to the fear of such venomous species as the cottonmouth moccasin, the copperhead, the rattlesnake, the massasauga, and the coral snake. Although these poisonous snakes have no place in a settled country, and efforts should be made to eradicate them, yet most common snakes are beneficial in their food habits and should be protected.

Wherever snakes are present in abnormally large numbers there must be an abundance of living animal food in the vicinity to attract them. This food consists largely of injurious rodents and insects, pests of garden crops and stored foodstuffs. Snakes eat such small living creatures, as earthworms, spiders, grasshoppers, salamanders, small frogs, mice, rats chipmunks, and young rabbits. King snakes are able to kill rattlesnakes, and have been known to eat them. The little red-bellied snakes subsist to a large extent on slugs, which are very destructive to gardens. Bull snakes and gopher snakes destroy large number of injurious rodents in the course of a year.

The food habits of very few snakes conflict with man's interests. Water snakes feed largely on small fish, but not as a rule on species used as food by man. The moon or queen snake eats crawfish and toads. The black snake and coach-whip snake destroy a certain number of ground-nesting birds, particularly quail and eggs in the nest, and have been known to eat young chickens and even young pheasants. Local campaigns for the destruction of these and of poisonous snakes may be desirable in many districts, and clubbing and shooting are, as far as known, the only successful methods of eradication. No successful apparatus for snaring snakes has ever been devised, and most species seem immune to poison gases.

"GIVE THE PLANTS A MULCH"

We hear so much about "mulching" the ground around our plants, and I suppose most of the readers of this magazine have their own ideas as to just what constitutes a mulch. I know I did. And it has taken me several years of gardening here in Southern California to realize that merely breaking up the surface of the ground with a cultivator doesn't make a satisfactory mulch.

In fact, I think a good many of us (I'd hate to feel that I am the single stupid exception to the rule) expect too much in every way of the common or garden soil by which our home is surrounded. We buy a plant from a nurseryman, bring it home, carry it out in the yard, scoop out a few handfuls of earth and tuck the little plant into this hole, after which we give it some water and expect great things of it. At least that's the way I used to do, and, as a general rule, the plant would flourish and grow for a few weeks and then come to a standstill where it would remain until Death removed it from its unhappy environment.

After a great many such experiences I realized that there must be something lacking in my garden soil, and that the first new growth of the plant was stimulated by the soil which had surrounded it when purchased. Since this great truth dawned on my consciousness I have had quantities of top soil brought in and substituted for the so-called "garden soil" of my back yard.

But even this new imported black soil cakes on the surface, so the question of a mulch comes up again, and I find that something more has to be added right on the surface around each plant. Finely screened and thoroughly aged manure is good in some instances, but coarse leaf mould is the safest, it seems to me, and the most satisfactory in everyway.

L. G. R.

Spring Rose and Flower Show, April 23rd and 24th.

Patronize the Garden Advertisers.

Notes on *Acocanthera Spectabilis*

This splendid and interesting shrub is comparatively rare, though widely distributed in Southern California. It should and will be better known when our gardens are older and the consequent sifting of the less desirable immigrants has proceeded farther.

It is a member of a tropical family having few representatives hardy enough to grow in our gardens. In the tropics the Apocynaceae are conspicuous for many of them have large and bright colored flowers. The greater part of the thousand of species are shrubby vines, some of them mighty lianes climbing to the tops of the giant jungle trees. They claim close relationship to the large family of Asclepiads or milkweeds, differing chiefly in a simple floral character. Familiar vines belonging to the same family are the Chilean Jasmine and *Trachelospermum jasminoides*. Among the shrubs claiming relationship are *Thevetia*, the Oleander and the Frangipani. A common greenhouse plant is the *Allamanda* with brilliant golden bells. The rare *Beaumontia grandiflora*, the giant Easter Lily Vine, is also of the same family. Most of the group with which we are familiar are noted for the powerful and pleasing, sometimes cloying fragrance.

Acocanthera has had a troubled existence for during the early botanical exploration of Africa the pioneer botanists insisted on mixing up a number of unrelated plants having similar poisonous qualities. In California, gardeners know the plant under two names, as above and as *Toxicophlaea spectabilis*. To begin with the genus was founded by G. Don on an entirely unrelated plant, a *Cestrum venenatum* found in wester South Africa. Later *Toxicophlaea* was founded on the same plant by Harvey. DeCandolle carried the error over into his *Prodromus* and the *Cestrum* has thus erroneously long been known under the name of *Toxicophlaea* of Harvey. Finally our present plant was sent to Kew from south East Africa and was first published as *Toxicophlaea spectabilis* by Sonder in *Linnaea*.

Thus from the very first the plant was hopelessly mixed with a number of other plants and distributed in the herbaria of Europe. Hundreds of other such cases came up and to clear the general confusion botanists called a world-wide meeting and all the leading institutions sent delegates to Vienna, where a set of nomenclatural rules were drawn up known as the Vienna Rules. To again complicate matters some of our American botanists refused to recognize these rules and so we also have an American Code. Thus *Nymphaea* is correct under the Vienna rules but

the old name of *Castalia* is retained under the American Code. The principal item of the Vienna rules was that of priority, meaning that the name first applied to a plant and published, should except by special vote, be the correct one. Thus the name *Toxicophlaea* could not be applied to the plant of Sonder for Don's genus *Tcocanthera*, under the priority rule, came first even though it were wrongly applied to another plant. The working of this rule may help to explain the oft repeated query as to why the names of plants are so often changed.

There are three known species all from Africa, and rather similar in character. They are closely allied to *Carissa* being separated chiefly by their spineless habit. Probably all are quite poisonous. *A. venenata* is called the "Gift-boom" by the Dutch and Poison Tree by the English colonists. A decoction of the bark reduced to a jelly was used as an arrow poison by the natives before the advent of the white man. The seeds of *A. spectabilis* are intensely bitter and the whole plant is considered deadly poison by the aborigines.

The poison must be eaten, and probably in fair quantities to take effect, so under ordinary garden conditions there is nothing to fear.

It grows wild in western South Africa and forms a large bush smothered in masses of fragrant white flowers. In California it forms a rounded fairly compact bush 5 to 6 feet high and as much through. The leaves are dark green some two inches long and quite leathery in texture. During the winter months the flowers are freely borne in tight, cone-shaped clusters, snowy white or pinkish and delightfully fragrant. The fruit is much like an olive in size, shape and color. It thrives in the loose, open, granite soil of Hollywood and does not seem to mind a paucity of water.

From the situations it naturally seeks in its African home where it colonizes the sandy, wooded hills along the coast seldom penetrating inland, it leads one to think that it may prove of value in our own sea-wrecked gardens.

HARRY JOHNSON.

Feb. 3, 1926.

Spring Rose and Flower Show, April 23rd and 24th.

Watch the newspapers for Spring Bulb Show.

Patronize the Garden Advertisers.

THE USEFUL COTONEASTERS

Another season with the Cotoneasters has shown them to be among the most valuable of all shrubs for northern gardens. A few kinds have been in cultivation for many years, but others are just being introduced by nurserymen. In all there are about twenty kinds which have been tested in the Arnold Arboretum and found to have merit. A few kinds are being recommended, especially for the northwest, where the climate is unusually severe. One of them, *C. acutifolia*, is beginning to be used for hedge purposes where the Privets would not survive the winters.

The Cotoneasters vary greatly in appearance, some of them having black fruit and other red fruit, some smooth, shiny leaves, and others dull green foliage, some growing as tall as the average man's head, while others remain prostrate.

C. horizontalis and its varieties are remarkably good plants to use for ground covers, having small but shiny leaves which persist until the beginning of winter, and bearing small red fruits in profusion. This is a much daintier looking plant than the dwarf Juniper, and better for growing in intimate locations. It is excellent for covering banks and low walls, and is sometimes used in rock gardens, although *C. adpressa* is probably the best of the family for this purpose, as well as for the edging of beds where taller shrubs are grown. *C. adpressa* is a remarkably dainty shrub.

Among the larger Cotoneasters, *C. hupehensis*, *C. multiflora calocarpa*, *C. racemiflora*, *C. divaricata* and *C. Dielsiana* are especially to be prized, all having red fruit which lasts until late in the autumn. One form of *racemiflora* to which the name of *soongorica* has been given is remarkably attractive. Indeed, Prof. C. S. Sargent of the Arnold Arboretum, calls it one of the handsomest shrubs of recent introduction.

C. nitens is another of the Cotoneasters which should be mentioned. Although the fruit is black and the flowers small, this species is remarkably graceful in habit, with wide arching branches and lustrous leaves.

If garden makers insist upon having these Cotoneasters, there is no reason why they should not speedily be widely distributed throughout the trade, because they are readily propagated and easily grown. Some of them at least should have a place in all collections.—From Horticulture.

THE THREE-COLORED TROPAEOLUM

This is one of the prettiest of the Tropaeolums, but it is not adapted for decorating large spaces; for balloons, trellises, or a potful of Birch twigs, however, it makes an ex-

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cellent covering. The foliage is small and neat, of a verdant green color, and the flowers, which are of a rich orange-scarlet, are borne in such profusion as to make the plant appear a complete mass of color. When well grown and flowered—an easy matter—few greenhouse plants match it for brilliancy. The tubers, which are not unlike a potato in appearance, should be potted in November in light, rich soil, and in well-drained pots; 8-inch or 9-inch pots are a suitable size for them, and if they are small, like marbles, perhaps several may occupy a pot. They may be kept from getting dust-dry. About April, or sooner, if the temperature has been kept much above 45 degrees, the slender young shoots will appear, and whatever kind of trellis or support they are to have should be fixed in the pot then; there is nothing better than branching Birchtwigs, about 2 feet high, stuck round the edges of the pot in a symmetrical form; to these the young shoots should be led till they take hold themselves, which they will do quickly. After this the plants want little attention, except directing the leading shoots occasionally, so as to cover the branches and prevent the shoots from running into knots and bundles, which it is hopeless to unravel. They grow rapidly, and soon drape their supports from top to bottom with their beautiful foliage and flowers. Water freely while growth continues, and keep the plants in a good light, but shade from bright sunshine will prolong their beauty. About midsummer the leaves will begin to fade, and water must be given more sparingly until the plants go to rest, in which condition they remain till potting time again comes round in November.

The Feb. and Mar. Gardens

THE FLOWER GARDEN FOR FEBRUARY AND MARCH

These are months of anticipation for the garden lovers, that is the true gardeners who are always looking forward.

Most people like some flowers in the garden for cutting as well as those planted to make the borders gay. Flowers for cutting, most of them will give quick results and put in now will give flowers from May until cold weather, in fact some will bloom right on through the year, for example Marigolds in sorts, this Christmas season, when our holiday flower, Poinsettia, was so brilliant, Marigolds were the dominant feature in the flower beds. The following list, if sown now, will give results all through the summer season: Annual Chrysanthemums in var., Clarkia is beautiful in various colors, get the Elegans type—corn flowers, Godetia, the best is the double in long sprays—Larkspurs, though a little late, may still come on the stock flowered is best for cutting, some few to which I will give special mention are first a lovely mallow, *Lavatera rosea splendens*, is easily grown if given a sunny place and the seedlings given ample room it is a hardy annual growing several feet high with rose pink flowers in sprays, very useful for the house as it lasts well in water.

The coreopsis or calliopsis as it is generally listed in catalogues is an easily grown annual (*Coreopsis lanceolata* is a perennial) there are several kinds listed in the annuals, Drummondii, yellow with brown centers; Coronata, yellow spotted with brown and, and also Sanguinea, a dark crimson, are the best. A new one is Fire King, a cactus flowered var. with deep scarlet flowers. The seeds of all that I have mentioned may be sown out-of-doors now at any time. Sow rather thickly and thin out when the little plants have made two or three leaves.

As soon as convenient and when the ground is fit, plants which have been grown in boxes or flats and hardened off as advised, may now be put into the garden beds. Make the soil firm around the roots, removing any dead leaves at the base of the plants. Do not plant too deeply, to the depth of the last pair of leaves is enough. Among garden lovers (and who does not love a garden this season of the year) there are always those who want blue in their gardens. Blue goes well with many other shades in the beds, such as pale yellow,

mauve, and pink, also always have a goodly lot of white. Two things in the blues that are especially desirable are the *Agathecolestis*, blue marguerite and the annual *Anchusa capensis* (cape forget-me-not) both of these, after one sowing, seed freely, and you can always have them. Many of the spring bulbs come in shades of blue, Hyacinths, Muscari. Grape Hyacinths are good, as well as many others.

REPOTTING FERNS

One of the most important points in potting Ferns is to wait until they are just moving into new growth again. We want the roots in such a state that they will take too the new soil at once. Without this we get a stale compost early, and it is seldom advisable to water them until their roots are well into the new soil. Too large a shift is also less beneficial than a slighter one, and the annual repotting of these favorite plants is responsible for many indifferent results. A plant which is root-bound may be improved by repotting, but when merely filled with roots it does not appreciate disturbance.

Turfy-loam, peat, and leaf-soil in equal proportions, with a dash of sharp sand, will do for almost any species of Ferns. Mix these thoroughly, and have the whole just moist enough to allow of firm potting. Never pot into soil of less temperature than the Ferns are growing in. Non-attendance to this has caused many disappointments, nor can this be wondered at when the roots of a plant just pushing into fresh activity are immersed in a compost some 10 degrees colder than it already occupies. To make the soil firm around the ball of a plant which has recently been occupying a pot almost as large, needs care. Add a small portion of soil at a time, and ram this down fairly firm with a stout label or potting stick. Unless this be done properly, water will percolate through the new soil too freely to allow of any moisture reaching the old ball without an undue amount being supplied.

Drainage is another item which needs attention. As a class, amateurs look upon Ferns as needing a good quantity of water. This is often overdone. With a few exceptions, we do not find Ferns growing in wet soil while in their natural state. If we pass over the *Osmunda* we do not find any of our

Continued on page 15

The California Garden

Editor
Alfred D. Robinson
Associate Editor
Miss Mary Mathews

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EDITORIAL

With deep personal feeling we have to record the passing of W. P. Brothers who for so many years has served the Floral Association as Director and Treasurer, offices he held at the time of his death. His offices of course will be filled but his place never, as the age is ceasing to build that exquisite gentleness of service that was his. He has taken his stand on the other side with so many of the early and faithful servers to The San Diego Floral Association and with them he will have a bright, green spot in our memory garden.

With this issue of California Garden Miss Mary Mathews officially becomes Associate Editor, and thereby pledges herself to not only continue but expand her valuable contributions. She will specialize on interesting items concerning new plants and new treatment of old plants and should be addressed inquiries that will come under these specifications, and it is hoped to organize a special department under her charge. This is indeed good news for our readers. Miss Mathews will appreciate the receipt of any helpful clippings from subscribers to the magazine.

The Floral Association will be glad of back Numbers of California Garden

REGULAR MONTHLY MEETING FOR FEBRUARY

On the evening of Tuesday, Feb. 16th, the regular monthly meeting of the San Diego Floral Association was held at the Floral Home in Balboa Park. The meeting was called to order by Mrs. Mary A. Greer, the Acting President, who, after making one or two announcements which appear elsewhere in this number, introduced Miss K. O. Sessions, the speaker of the evening.

The topic chosen by Miss Sessions was the Robinson gardens of Sussex, England, which she visited during her trip abroad last summer. Mr. William Robinson will be remembered as having been for many years editor of the English publication, *Gardening Illustrated*.

Some three dozen stereoptican slides were furnished by Mr. J. W. Elliott of Point Loma. These slides were in natural colors and were reproduced from photographs of some of the most delightful vistas of these justly famous gardens. Miss Sessions laid particular stress on Mr. Robinson's fondness for "the natural form in the garden", and indeed there was nothing formal or artificial-looking about this estate, as the charming pictures showed, from the rustic pergola at the entrance to the marshy edges of the lake with hosts of golden daffodils naturalized under the elms and birches on its banks.

It was a rare treat to hear about these wonderful gardens which, to most of us, had been only a name, and the Floral Association is grateful to Miss Sessions for a very pleasant evening's entertainment.

After the meeting adjourned, coffee and cakes were served by the House Committee.

IS MY SUBSCRIPTION OVERDUE?

So many people call up or write in to the Secretary to ask this question, and no doubt many others would like to keep track of their dues and have the satisfaction of knowing when it was time to pay them. This information is printed every month on the cover of this magazine, and if you will look right now you will see that after your name is a letter—either "M", if you are a member of the San Diego Floral Association as well as a subscriber or "S" if you are a subscriber only. After the "M" or "S", as the case may be, you will find figures, as, for example, "6-26" which means that John Doe's subscription will expire the 6th month of 1926. If you should find that the figures after your name "6-25" it would mean that you are eight months behind in the payment of your dues, and a check made out to the San Diego Floral Association mailed to Box No. 323, would be the answer.

Patronize the Garden Advertisers.

ACACIA SHOW

On the afternoon of Thursday, March 4th, from 2 to 4:30 o'clock, an informal acacia show will be held at the Floral Home in Balboa Park. All who are interested in any member of this large and diversified family are invited to attend—if you can bring in specimens of your favorites, so much the better, but come anyway. Tea will be served at 4 o'clock by the House Committee.

FORGOTTEN VASES

Several exhibitors who entered flowers at the Spring and Fall Shows forgot to call for their vases after the shows were over. These vases are being cared for at the Floral Home in Balboa Park, but if their owners would call for them some Thursday afternoon, they would doubtless be happier in their own homes.

REGULAR MONTHLY MEETING FOR MARCH

The date of the regular monthly meeting for March has not yet been determined upon. Watch for the announcement in the newspapers—Sunday's Union, usually in the "Society and Clubs" section, and Monday's Tribune and Sun.

THE USE OF FRUIT TREES

The employment of fruit-trees is by no means confined to their utilitarian value.

The planting of fruit-trees in avenues is a means of beautifying the landscape which is yet in its infancy. This point needs no emphasizing to those who have passed through Japan in Spring. Poets have sung of the Cherries, but Plums share, perhaps, equally with the Cherry in the fame of the "Cherry Blossom" of Japan.

By a judicious planting of Pears, Cherries, Plums, and Apples the garden architect can obtain a flowering period lasting through two months of the year, and with material which is excelled by no other for beauty.

In Victorian days there were frequently planted avenues of trees of the least lovely and almost useless kinds, but horticulture has since advanced, and not only flowering trees which produce no fruit, but fruit-trees for the value of their blossom are now freely used with fine effect.—Stuart Low & Co., in Popular Gardening.

CONTROL OF SLUGS

There is nothing more effective and safer to use for the destruction of slugs and snails than ordinary alum, and it may be applied in any scale, great or small. It may be used in

saturated solution, either to water the ground or spray the plants with, without risk of damage, and a hot, saturated solution applied to rubbish heaps and other haunts of the pests, where there are no plants to injure, will exterminate every adult and egg it comes into contact with. Its preparation (in solution) is of the simplest description, and there is nothing in it to clog the nozzles of syringes or do them any harm whatever. It may also be used in the powdered state for the protection of isolated plants in slug-infested ground. I am surprised at people worrying over such materials as sulphate of aluminium, poisons, trappin, etc., when they have such a simple, otherwise harmless, and cheap and effective substance as this ready to hand.—A. D. Richardson, Edinburgh, in "The Gardeners' Chronicle," (England).

SEASONABLE FLORAL DECORATIONS

Daffodils in endless forms and numerous varieties now afford excellent supplies for cut-flower arrangements. These will be followed by others so that there need not be any fear of sameness. Daffodils for arranging in a cut state should be taken from the plants before they are fully expanded. They will afterwards further develop and last a long time in good condition. As long stems as possible should be secured; thus when they have been two or three days in water, and this needs replenishing, a small portion may be cut off. For foliage to arrange with the Daffodils nothing, as a rule, surpasses their own. It is the most appropriate, and at the same time easy to set up with the flowers. Should it be desirable to arrange an extra large quantity in one vase, such as for an entrance hall or the centre of a dinner-table, then additional assistance is needed to afford greater facility for the prevention of crowding. For this purpose there is nothing too equal the shoots of *Berberis Aquifolium*, especially when it can be had with the deep-bronzy tints so peculiar to it in some soils for situations. A few of these shoots should be first placed in the receptacle intended for the flowers, and somewhat closely together. Then the flowers can be placed in position without that fear of over-crowding which must inevitably ensue if some such means is not adopted. In all large-sized arrangements the flowers, too, should be proportionately large; in similar ones with only a few flowers those of less size will look much the best. For bold arrangements nothing can surpass those of the Emperor and Empress types, with their own characteristic broad foliage to accompany them. Both single and double varieties are alike valuable for cutting, but they should never be arranged together. Two or more shades of yellow look well in one

Continued on Page 13

THE NEW AMERICAN DELPHINIUMS

Editor Florists Exchange:

In your issue of Oct. 10, page 1181, you published my letter regarding the new strain of *Scopolorum-Cardinalis* hybrid Delphiniums, but remarked that it might take several years for these to equal the English and Continental hybrids. I failed to mention that the *Scopolorum* hybrids were in the fourteenth generation and that the *S. Cardinalis* hybrids were in the sixth generation. The results are now apparent and can soon be offered to the world, but the name of this race has not yet been chosen; being American the name Poesel Liberty strain has been suggested.

While technical, professional and agricultural schools and experiment stations devote themselves to studies covering all phases of horticultural research, only a few have given attention to the Delphinium, thus making it possible for the writer alone to evolve this typical American strain. It is not a chance type, but came through making use of previously discovered scientific laws and rigid selections.

Mr. Mackenroth of the People Gas Co., Chicago, having a few of these Delphiniums, exhibited them at the annual show of the Commonwealth Edison Co.; he won first, second, third and special prizes on Delphiniums and sweepstake prize against all perennials, the judges being Mr. Schielle of Lincoln Park, Mr. Degnan of the American Bulb Co. and Mr. Roman of Douglas Park. The seedlings given first prize was a double royal blue and indigo with no bee. It will later be distributed as Elks Beauty. Blooms of this strain were shown during the past summer to such firms as the American Bulb Co., Amlings, Chicago Flower Growers Association, Poehlmann's, Vaughan's Seed Store, Barnard's Seed Store, Mangel's and others and all stated they had never seen their equal for cut flowers. This strain is very hardy and prolific, each growth being followed by others, consequently the number of flowering stems is greater than any existing type or types.

The stock of these new hybrids now consists of thousands of distinct plants, chosen from hundreds of thousands of seedling raised through line breeding. One series of 12 plants, represents the selection from over 70,000 seedlings; these are all pure pink of exquisite coloring. Many seedlings from this series will be bloomed in 1926 with the hope of securing the one and only pink Delphinium, which will have all the features desired. Another series embraces a line of blues which will come dark blue doubles, without a trace of other tints. Another series points to pure double red.

Once in a while a wonder flower appears,

and in this strain, "Wonder" flowers is not exaggeration. The flowers range from 2 in. to 3 1/4 in. diameter, placed artistically on wiry stems some 30 in. to 45 in. the spikes ranging from 12 in. to 30 in. The petalage of some of these flowers is elongated or Aster petaled; some are crinkled, some curled, curved and twisted into perfect rosettes. Some have a silky sheen while others are transparent and crystalline. In one series the stems are black, the plants showing amazing variations in habit. Another series has pinkish stems with red foliage in the young stage.

Everyone, whether he grows for cut flowers or sells perennials can handle these Delphiniums. Every home and garden owner will, I believe, succeed with these outstanding new hybrids.

A. L. POESSEL.

6970 W. Ashland ave., Chicago.

NOTICE

After Jan. 1st our gardens and entire stock of 600,000 Gladiolus, 50,000 Dahlias, bulbous plants, etc., will be moved to our new location at 702 E. 24th St., National City, Calif., where we will be pleased to have you visit us. Please address all communications to Ralph F. Cushman, Glad-Dahlia Gardens, R. 1, Box 166, National City, Calif. Telephone Nat. 235

Ralph F. Cushman

GLAD-DAHLIA GARDENS

THE TWELVE BEST ROSES

The following article was sent by Mr. Hotchkiss and is published here as likely to be of assistance to many readers of California Garden, in fact it asays to answer a question continually put, What are the best twelve roses to plant in a Southern California Garden? As none of the lists agree, California Garden, through its Editor, dares to put forward another and a different one, based upon personal experience over a long period right in San Diego. It does not include any of the newer kinds because most of them are untried as a regular garden rose, for two or three years trial is merely a basis for a guess. However, their exclusion does not mean they are unworthy. Here is our list.

General MacArthur, still much the best red.

Papa Gontier, the ancient but splendid red, unequaled in bud.

Hadley, deep crimson, preferred to Crimson Queen.

Rose Marie, pink.

Los Angeles, shaded pink, in every collection all over the world.

Joseph Hill, one-sided grower, but a cheerful producer of perfectly formed large shaded pink blooms.

Isobel, the splendid deep rose single, good in bud and full bloom.

Mrs. Aaron Ward, ruffled petalled yellow, constant and good.

Sunburst, yellow, good substance and form.

Ophelia, shaded yellow or pink, a standby.

Kaiserin Augusta Victoria, white, safer than Frau Karl Druschki.

White Cochet, not white but lemon shaded that never should have been dropped from any collection.

THE TWELVE BEST ROSES FOR REDLANDS

By S. R. Hotchkiss, in Daily Facts, Redlands.

As the planting season for roses is now at hand, the Horticultural Society deemed that it would be helpful to its members and the public to secure from various growers a list of twelve bush roses (exclusive of Hybrid Perpetuals), best adapted to this locality. A request was therefore addressed to five growers, and the result is herewith submitted. The points to be considered were given as follows: Vigor of growth, comparative freedom from mildew, color, form, fragrance, resistance of bloom to sunshine, strength of flower stem, freedom of bloom. Obviously, no rose possesses all these qualities and an approximation is all that could be hoped for.

From the City Nurseries of Redlands, Inc.: Los Angeles, Columbia, Sunburst, White Cochet, Pink Cochet, Radiance, Lady Hilling-

don, Mme. Edouard Herriott, Golden Emblem, Crusader, Mad. Caroline Testout, Gen. McArthur.

From Armstrong Nurseries, Ontario: Hoosier Beauty, Hadley, Gen. McArthur, Golden Emblem, Souv. Claudius Pernet, Los Angeles, Rose Marie, Mrs. W. E. Egan, K. A. Victoria, Mme. Butterfly, Mme. Ed. Herriott, Isobel.

Armstrong Nurseries recommended Souv. enire de H. A. Verschuren in the event that the single rose "Isobel" was not desired.

From Howard & Smith, Los Angeles; General McArthur, Los Angeles, Mrs. Aaron Ward, Hadley, Kaiserin Aug. Victoria, Lady Alice Stanley, Mad. Ed. Herriott, Mad. Caroline Testout, Souv. de Claudius Pernet, Padre, Ophelia, Rose Marie.

From Germain Seed & Plant Co., Los Angeles: Pink Radiance, Red Radiance, Hadley, Rose Marie, Lady Hillingdon, La France, Pink La France, Columbia, Golden Emblem and Sunburst.

From Paul J. Howard, Los Angeles: Radiance, Red Radiance, Los Angeles, Golden Emblem, Gorgeous, Imperial Potentate, Madame Abel Chatenay, Rose Marie, Souv. de H. A. Verschuren, Edel, Madame Edouard Herriott.

Mr. George C. Thomas, Jr., of Beverly Hills is a leading authority on the rose in America, author of "Roses for all American Climates" and "The Practical Book of Outdoor Rose-Growing for the Home Garden." As a hybridizer he has developed many of the choice new roses. Mr. Thomas kindly consented to furnish a list which is as follows: Red Radiance, Hoosier Beauty, Laurent Carle, Radiance, Los Angeles, Mrs. Henry Morse, Golden Emblem, Souvenir de H. A. Verschuren, Souvenir Pierre Notting, Lady Plymouth, W. R. Smith, Mrs. Egan.

Mr. Thomas also recommended the three Madame Cochet roses, pink, white and red.

Twelve Best Roses for Redlands

A surprise of this referendum was the large number of varieties recommended. However, three or more votes were cast for each of the following roses, which therefore constitute the first nine of the dozen:

Los Angeles, Pink, 5 votes.

Golden Emblem, yellow, 5 votes.

Madame E. Herriott, Red, 4 votes.

Rose Marie, Pink, 4 votes.

Gen. McArthur, Red, 3 votes.

Hadley, Red, 3 votes.

Radiance, Pink, 4 votes.

Red Radiance, Red, 3 votes.

Souvenir de H. A. Verschuren, yellow, 3 votes.

The above roses constitute nine of the twelve best varieties. The remaining three may be selected from the following, each of which received two votes: Mad. A. Chatenay, pink; Hosier Beauty, red; Mrs. W. C. Egan, pink; Souvenir C. Pernet, yellow; Kaiserin Augusta Victoria, white; Columbia, pink; Sunburst, yellow; Lady Hillingdon, yellow; Mad. Testout, pink; Mad. Cochet, white and pink varieties; Ophelia, salmon-flesh.

It will noted that only two whites, Kaiserin Augusta Vivtoria and White Cochet are mentioned in this list. The writer ventures to add Frau Karl Druschki, though as it is a hybrid perpetual, it is not eligible in this contest. It is a profuse flowerer, here, however, and such a fine grower that it should be freely planted. In the writer's experience, too much cannot be said in praise of the Kaiserin Augusta, strong in growth, clean foliage, free flowering, and lovely ivory white color, with delicate perfume.

Two roses received the largest number of votes in this contest, Los Angeles and Golden Emblem. The famous rose, Los Angeles, was developed by Howard & Smith and is a universal favorite. It was produced by a cross between the Lyon rose and Mme. Segond Weber. It is classed as a Hybrid Tea, but has much pernetiana blood, i. e., that of the Austrian brier. Golden Emblem is also a hybrid Austrian brier. All the varieties named in this list are fully described in Thomas' "Roses for All American Climates," a copy of which can be consulted at the public library. It should also in the library of every rose-lover.

In conclusion, it is somewhat disappointing that a definite list of the twelve best roses for Redlands has not been secured, but it is believed that the list given above will be a safe and reliable guide for the amateur rose grower.

SYNTHETIC MANURE

By Dr. Robert Stewart, in Florists Review.

Barnyard manure is one of the most important by-products of the farm. One of the great advantages usually ascribed to a livestock system of farming, such as dairying, is the opportunity such a system offers to obtain material for maintaining the fertility of the soil.

There is a peculiarly tenacious opinion held by many, that livestock, in some mysterious fashion, actually produce or manufacture the manure voided by the animals. Manure is really the unconsumed portion of the feed eaten, together with a small amount of the waste products of the body which has been thoroughly inoculated with and acted upon by the various types of bacteria occurring in the intestines of the animal. The bacteria continue to act upon the organic matter after

the manure has been voided and added to the soil.

Animal manure, then, is of value in soil improvement because of (1) the plant food which it contains which was obtained originally from the soil by the crops used as feed, and (2) the organic matter which it contains, and (3) the bacterial flora with which the unconsumed feed has been thoroughly inoculated as it passes through the animal body.

There are some types of crop production, such as in horticulture and floriculture, in which the keeping of livestock is utterly impossible, yet the operator feels that he is distinctly handicapped in maintaining the productive power of the soil by the lack of barnyard manure.

Frequently farmers buy livestock and feed them throughout the winter without profit other than that derived from the manure produced. Occasionally florists and nurserymen buy both livestock and hay and go into the feeding business without profit, and sometimes even at a distinct loss, simply to obtain the manure produced in order to maintain the crop-producing power of the soil for their main line of business.

Of course, commercial fertilizers are always available for use by those who do not have barnyard manure available, but the use of commercial fertilizers alone does not fill the need in many cases. Commercial fertilizers are not a substitute for barnyard manure since, while they contain the plant food, nitrogen, phosphorus and potash, they do not usually contain organic matter nor the bacteria that are to be found in the manure.

The situation confronting many operators is perhaps best indicated by a quotation from a correspondent: "We are operating some 1,200 acres of nursery, and one of our most important problems is how to keep up soil fertility at a minimum of cost for doing so. We have never yet been able to find any commercial fertilizing that takes the place of stable manure. We sometimes buy manure by the carload lot from Buffalo, but it is costly and sometimes the quality is so poor that it is hardly worth the freight upon it. For some years past we have made it a practice of buying several hundred steers or dry cows in the fall and carrying them through the winter primarily for the sake of the manure. Sometimes we have made a little money on the cattle and more often we have lost a little money, or sometimes a good deal of money, but we have felt it necessary to keep on wintering cattle just so we could have a manure supply."

The grain farmer meets this problem by plowing under crop residues of the farm, consisting of such coarse material as corn stover, wheat straw, clover chaff, vines and weeds, together with certain combinations of phos-

Continued on Page 15

THE LATH HOUSE

By Alfred D. Robinson.

What I Am Doing Just Now

I have been freely telling folks that there was plenty of time yet to attend to the tuberous Begonias, but reference to my diary, which I write painfully and read sparingly, shows me that I am already two weeks behind. This put me to work immediately, and all tubers are now on a bench in the glasshouse resting on a shallow layer of leaf mold and lightly covered with sand, the whole moistened not wetted. This is slightly different from former technic for last year I used sand altogether and in previous years have relied on moss. The change has been made because the sand was difficult to keep at an even moisture and the root action in the moss made separation at planting time hard. This glasshouse is heated to about ten degrees above outside temperature with oil lamps. Perhaps a little more heat might be serviceable, but not much as forcing is not desirable. The tubers will remain thus till well started. When potting, too small rather than too large a pot should be used. Good drainage is absolutely essential, and the compost wants to be rather open or coarse with a liberal supply of humus and a salting of charcoal. Tubers must not be buried deeply, the crown well covered is enough. Perhaps I should say again that the top side of the tuber is the bottom. The smooth rounded side must go down and the cupped side up; if planted upside down they will never do any good, not being endowed with the faculty of turning round like I have heard folks claim seed potatoes and other bulbs will.

The Rex Begonias are showing gratitude for the soft rain water, they are starting to push those new leaves like the softest plush and that means they are ready to make new roots ON THE TOP not below the old ones. If it is not desired to make any change, either in plant or receptacle a top dressing of leaf mold, sand, a little charcoal and bone meal will be appreciated. If there is no room for this application remove some of the old soil carefully. The Rex after a year or two tend to get weedy, they have a straggly bare stem with a tuft of leaves on the end, such should be decapitated and the growing end used as a new plant, if care is taken to leave roots on the cutoff, growth will hardly be retarded at all. The old roots can be then used for propagation being left to make new shoots which can be taken off as they develop. There seems to be little or no value to the old root system, in fact it tends to rot away, Rexes are distinctly surface feeders. This must not be taken to be advice to promiscuously carve all

big Rex plants to the heart. For large old specimens are the Kingpins, it merely refers to those which have spread to a few widely separated bunches of leaves on bare nobby stems, or others that seem to have lost ambition to grow. To illustrate, President Carnot tends to sprawl as does the charming little Modesty while Lesoudsii will keep getting bigger and handsomer for many years. There has been of late years very little work done with the Rexes to make them a popular plant and today the big majority shy at the idea of trying them. This is merely a superstition, they have definite likes and dislikes but are reasonably adaptable and with understanding care are a good house plant. I kept two large specimens in the house for three months without apparent injury and they were placed where I wanted them for artistic effect and not in the window bay. The Rex of the future will be cherished more for its habit of growth than spectacular markings or size of leaf, it will probably have many more leaves of moderate size and grow compactly and symmetrically.

The Maidenhair ferns also are arising to bless the rain, they dote on soft water. Now is the time to remove all old fronds whether they are shabby or not, this fern is modern and likes a bob. The same treatment advised for the Rexes goes with Maidenhair, except that it is a hundred to one chance that yours don't want repotting or dividing or devilling up in any way. More Maidenhairst are killed by repotting than in any other way, they love to run their roots all around next the pot and surround the ball of earth, in fact till they do so they are not happy. Here, too, drainage is so important, the reason that these ferns and Begonias do well in hanging baskets is that we amateurs have not yet discovered a way of blocking the drainage to them. If in pots take a stick and push up the crock over the drainage hole to make sure it is open.

Most other ferns don't approve of bobs, it is necessary to leave a few mature fronds for breathing. This brings us to the annual fern trim in the lath house, now is the time to cut off all the fronds that can be spared before the new ones make it difficult. It is the easiest and surest way to keep in control the brown fern scale.

You should be considering the annual top dressing for your lath house. I hope you have not forgotten that lath house beds should not be dug over annually like the outside garden but should have a rich top dressing, there is nothing better than leaf mold and cow manure, half and half, and don't

skimp it, put it on three inches thick all over. If you want to use a commercial fertilizer make it bone meal, which is a food not a stimulant, and lasts over a long period. I strongly recommend getting this mulch on right away while the ground is wet and in hopes that another good rain or so many come on it and naturally incorporate the two.

And now about the illusive cutworm, illusive all round. He is various, the term is generic rather than specific, but my cutworm is a smooth affair that begins his horrid career as a piece of black thread that by sacrifice of the tender parts of my best plants becomes a brown worm with a bald head and after orgies of terrific develops into a long yet flat bog filled with greeny loot. His habits reflect his mentality, he hides by day and sneaks out at night, if detected prowling he curls up and falls down into any convenient crevice and pretends to be dead, in fact he is a ruffian. This year there are a lot of cutworms and they must be stalked at night, quite late as they don't sup much before ten. I go after them with an electric torch, first having turned out all the lights in the house an half hour earlier so that they may think I have Fisked for the night, they watch for this, I am sure. When I go out I do so quite openly I make a cursory round wait a minute and then pop back and then I get them. What do I do with them? Well you know that poem of Bret Harte's about the man who was divorced and set out to prove the injustice of the verdict on the members of the court, it reads: He smiled a bitter smile to see and drew the weapon of Bowie, He did what Sickles did to Key, what Cole on Hiscock wrought did he, in fact on persons twenty-three he proved the marriage scanty, and that's my attitude and action. And in case you ask, I don't know any other way.

Slugs will be coming, and in spite of the cyanide and alum and other treatments, I hang to picking and pickling the crop in a vessel of dry lime. They are hatching out now, and it is the approved time to go after them.

Now after all this serious matter I want to pass on a tip that I read somewhere that I tried out today and found it better than most. Every gardener suffers with calloused knees or he is no gardener. I have packed a cushion, have clamped folded sacks on my knees, etc., etc., but only found them a nuisance. The tip I speak of was to take a section of an old auto tire and put straps on for a kneepad. Fellows, it works, with a saw I cut out a tire section about eight inches long, bored a hole in the middle on either edge, attached two pieces of string and tied her on and had a comfortable time, for two hours weeding, a thing that has never happened before, I mean the comfort end of it.

A DREAM THAT DIDN'T COME TRUE

Twenty years ago, when I built my house the style for weather boarding, was re-sawed, rough, Redwood lumber. The color fashion of that day was dark brown; the window trimmings light yellow.

My idea was to have a rose embowered cottage, and to my notion a white rose was the proper color combination in the color scheme. Lamarque, which originated in 1830, was the variety selected, for the reason that no white climbing variety is its equal, even unto this day. A thrifty grower, a profuse bloomer, and practically mildew proof.

For three years the plant grew apace, then for some reason unknown to me at the time, it began to fail. Now plants, like animals, when in a weak physical condition are sure prey of all sorts of parasites. Red scale was the pest which fastened itself on the bush, and in spite of insecticides, and of fertilizers the poor bush became weaker as the days went by.

In desperation I dug it up, and discovered that nematodes the worst of all plant pests, had devoured the feeding roots. To rid the soil of this terror, it was saturated with bisulphide of carbon, a chemical that is sure death to all animal life. When the disinfectant had done its work, and evaporated I decided to plant a trumpet vine—*Pithecoctenium muricatum*—which has small, smooth foliage and pale yellow flowers, having the appearance of being made of worsted. Time was when this beauty was plentiful in this Southland, but not so now. This subject grew luxuriantly three years, then it, too, began to show an unhappy condition. It, too, was then dug up, and, to my amazement, its root system was being destroyed by the same parasite which caused the death of the rose. The front of the house is yet without the leafy cover so desirable to make it pretty.

Right now an experiment with *Solandra guttata*, an epiphyte in its native habitat, yet grows luxuriantly in California soil and sunshine. It looks thrifty and seems happy, and may be that in time the dream of a cottage covered with foliage and flowers will be realized, but the dream of a Rose embowered Cottage never.

Plant Affinities

Plants, like people, have their affinities. It is a reasonable supposition that one species or variety of rose is as good as another, on which to work a different variety. Such is not the case. Marshal Niel is a variety, and *Rosa gigantea* a species unite with *Banksia* in perfect union, and make prodigious growths. A number of other varieties worked on the same stock, showed no disposition to unite in friendly fellowship, and utterly re-

fused to grow.

The same is true of Eucalyptus. Eucalyptus ficifolia the most gorgeously beautiful of all flowering trees in this climate, will not unite in marriage, with any species except E. calophylla. Every one knows, whoever has grown E. ficifolia from seed, that it does not come true to color. Therefore it must be propagated by the method known as "approach"; that is a seedling plant set close to a branch of a tree of the color desired. A thin slice taken from the side of the branch, and from the side of the seedling, and the two surfaces bound together. In about three months they will have become united, and be separated; the top of the seedling or stock cut off at the union, the branch of the tree cut at the same place, the binding left on until it begins to show an impression in the bark of the new creation. It is a slow process, but the only method by which a type may be perpetuated.

Hedge Plants

To my mind "hedges" are a garden abomination. Formal in appearance, they are unsightly, un-natural, therefore a travesty in the ART of gardening because the highest type of the ART is the nearest approach to Nature that man is capable of doing.

Since some people are not happy unless they have a hedge on their premises, and Privet is so everlastingly common, this writer dares to make mention of some shrubs which, if used and properly cared for the landscape would be infinitely more beautiful during our rainy season than they are at present. It seems almost impossible for some folks to break away from their early training in gardening.

Now then, for some evergreen shrubs, worthy consideration of a place in the gardens of Southern California. Rein-ward-ti-a trigyna, a member of the Flax family of plants. No use to go into the details of why it is not called a Linum. This subject is a native of the mountains of East Indies, and fits into our sunny clime, as neatly as a kid glove fits the hand of milady. The flowers are golden yellow, and borne in great profusion from December 1st to February 1st. It is easily propagated from half ripe wood in a sash covered frame. Cuttings put in now will make fine plants for lining out along about June 1st, and, if given feed, and water, during the summer, will make a gorgeous show with the return of Spring, which is November. Readers of these lines who may have a plant more than a year old should cut it back severely, and start it on its way to a new life.

The next plant for our consideration is an evergreen from South Africa, known under

Continued on Page 15

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SEASONABLE DECORATIONS

Continued from Page 7

vase, but if white is used then one shade of yellow is preferable. Daffodils are at all times more effective when arranged by themselves. They do not even look so well when associated with the Polyanthus Narcissus, much less so when put with anything of quite a distinct character.—Southern Florist.

**Spring Rose and Flower Show, April 23rd
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CHRYSANTHEMUMS

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MODERN CHRYSANTHEMUM GROWING

In growing a popular plant like the Chrysanthemum there are certain important details, the non-observance of which may readily land one into difficulties. On the other hand there are methods which are the better modified as time goes on, and it should be of service to the interested therefore to point out changes, for if any cultivator moves always in a groove that cultivator is bound in the long run to be left behind. I exhibited for the first time in 1894 and am still a learner. As each season comes round I note something in the growing of the plants that were better either done or left undone.

If, for example, the object be to win prizes, the would-be winner must concentrate particularly as to the number of blooms a plant shall bear. In the early days of one's practice it was customary to have usually three flowers to one plant—three stems with one bloom at the point of each. To out-distance friendly rivals the number was reduced to two in the case of most varieties. But today a grower who does not confine the number to one stem to each plant is likely to find someone else has obtained superior development when at the place of show the samples are put together. A modern idea is to grow a single stem to its utmost capacity to get a flower as wide and deep as possible.

From every point of view one favors the idea; it is neatness itself. The one stem is watched so that no harm shall come to its point. When the all-important flower bud appears this, too, is treated individually to see that no harm comes to it. It may be true that should some mishap take place the plant is useless.

In the matter of time of rooting the cuttings there need not be great hurry. February is a capital period, and in the case of a few late sorts, should the cutting be rooted sooner, it is well to nip out the point of the stem when the plant is quite young, in March.

Some recommend April, but I much prefer the earlier date for such varieties of the big Papanese as Majestic, Mrs. G. Drabble, Queen Mary, W. Rigby, Princess Mary, and Victory, to name a few. When the point of a stem is taken away a considerable time elapses before a new leader forms and gets well into its stride, as it were. If rooted from February onwards these late kinds do not usually show a bloom bud too early without any check whatever.

Coming to quite a modern phase, I refer to furnishing each plant with from six to a dozen or more flowers. The samples may be named miniature show blooms, for such they are in all save gigantic proportions. If the future could be looked into it might be pretty safe to state that this idea carried the Chrys-

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anthemums on and on in esteem. Varieties at once beautiful and of comparatively easy growth can be dealt with, and the results are flowers lasting when cut, and, as indicated, pleasing from other standpoints. Here also it is a case of concentration; the cultivator limits the number of stems, and by removal of superfluous side growths puts the whole of the plant's energies into the development of the few. This method is applicable to most of the Japanese sorts, especially so in the case of the charming single forms. Dealing with the branches brings the question of the advisability of any tipping of the points—termed in the language of the cult "stopping." If one is in favor of allowing each kind to take its natural course of branching the practice of many may be otherwise. At any rate I am convinced that the tips of the branches cannot be interfered with without taking away something from the subsequent development of bloom. Much is often heard as to the uses of tipping for the purpose of regulating the time of blossoming; yet here it seems that the good results may easily be exaggerated. For dwarfing the growth of a plant the system has its merits, of course, and I agree that from a market point of view a comparatively longer growing stem may be added to the flower, but these are about the only points to name that shall make the plan worthy.

Later-day Chrysanthemum growing is not favorable to a method known as planting out; that is, growing the plants in open ground and lifting under glass to bloom. As an expedient the saving in labor is great, but however carefully the details are followed, the check of lifting and thus disturbing the roots brings in its train too many ill-formed flowers, devoid of one great attribute—lasting powers when cut. In the season, markets are filled to overflowing with such material, which usually neither satisfies the buyer nor pays the seller. All other than early flowering varieties are the better for potculture from start to finish.

If one were to review the past and note any difference in connection with the Chrysanthemum generally it is not cultivated with greater ease than in my own earlier times. Then, as now, the plant was extended to the utmost by constant attention to details.

H. S.

A DREAM

Continued from page 13

the name, *Turraea obtusifolia*. The flowers are of the purest white, produced in the greatest abundance six months of the year. It belongs to the same tribe as our Texas Umbrella tree. A hardier subject than the one before described. Both of these may be so pruned that they will appear natural, in-

stead of belonging to the "bobbed haired" class of hedges. Two feet is about their height. Now comes a dwarf which is much prettier than dwarf Box, and will satisfy the desire of the individual who insists on a low hedge around his flower beds. It is a species of *Teucrium*, dwarf habit, dark green leaves, smooth and shining; flowers blue. The specific name of this plant is not quite clear to this writer. Perhaps some reader of the Garden will help us out.

PETER D. BARNHART.

REPOTTING FERNS

Continued from Page 5

own varieties growing in wet soil; they are in sandy loam, and generally upon a bank. A dry, arid soil does not suit them any more than a wet one. What we want is a quick drainage with a soil of that medium moistness spoken of as col. One or two good crocks fitted over the drainage hole with care, and then a small quantity of cinders on top of these will provide safe drainage. Shake away a good bit of the old compost, use clean pots, and avoid exposing the roots for any length of time.—Gardening Illustrated (English).

SYNTHETIC MANURE

Continued from Page 10

phorus, nitrogen and potash.

The nurseryman, florist and market gardener cannot make use of this type of material, since soil used for this purpose must be in a friable condition at all times for the best results. Some other recourse must be adopted to maintain the fertility of the soil in these types of production.

A similar problem confronted the farmers of Great Britain at the close of the late war. The war had caused a marked decrease in the number of livestock in Great Britain, due to the use of horses in the army and the slaughter of cattle to feed the hungry population and save the grain. As a result, there was a scarcity of manure and a marked surplus of straw.

European farmers make better use of manure in crop production than do American farmers, as a rule, and this lack of manure seemed a veritable catastrophe. So an appeal was made for help to the famous Rothamsted experiment station. The scientists of this institution worked out a definite process for making synthetic manure out of straw without the aid of livestock.

The process is a simple one, but, as worked out by the British scientists, a portion of it is a patented secret. This portion consists of a patented preparation containing the necessary bacteria and material for their food, which corresponds to the common yeast cake

used by the housewife in making bread. It is placed on the market for anyone to buy and use in making synthetic manure.

This bacterial preparation is mixed with any type of non-woody vegetable matter, such as straw, weeds, corn stover, leaves; in fact, any of the waste material of the farm. The whole material is kept wet and the final product is chemically, and in fertilizing value almost the counterpart of stable manure.

For each dry ton of vegetable material 150 pounds of the patented bacterial reagent is used. The straw or other material is spread out about one foot thick and tramped down thoroughly; it is then thoroughly wet with water and about twenty-five pounds of the reagent is sprinkled over it for each ten square feet. Another layer of straw is spread about one foot thick, trampled, soaked with water and sprayed with the reagent. This is continued until six or more layers have been obtained, and the top of the pile is left flat so that it will retain water, instead of shedding it.

In a few days the bacteria become active, and as a result, the pile becomes quite hot in much the same way that a pile of fresh horse manure does. In order to bring about the proper kind of bacterial action, the pile must be sprayed with water every two or three days so as to keep the temperature down to the proper degree. In about three weeks the heat is not so intense and the pile needs only an occasional wetting when the top and sides become dry.

In about four months the pile shrinks to half its former volume. The material can be cut with a spade and is ready for use.

Synthetic manure is more bulky than ordinary stable manure, but otherwise it looks much the same and, of course, has much the same chemical composition, inasmuch as it is derived, as stable manure is, from plants. Experimental tests indicate that it has much the same crop producing power as ordinary manure.

It has some special advantages over the ordinary stable variety. It is odorless. It does not attract flies and is practically free from weed seeds. It does not lose its plant food by leaching, as does ordinary manure. These advantages ought to have a special appeal to all.

It is a remarkable fact that for many centuries the farmers of China, Korea and Japan have been producing large crops from their soil. Barnyard manure in quantities, as we have it, is not available, because few livestock have been kept, since crops used directly as human food will support many times more people than when they are fed to the livestock and the livestock products are used as human food. Commercial fertilizers as we know them have not been used until quite recently, and then only in Japan. One of the important ways in which the oriental farmer has solved

his soil problems has been by means of synthetic manure prepared in much the same way as this synthetic manure in Great Britain.

The common farmers of these ancient peoples, without any knowledge of bacteriology or chemistry, have learned from practical experience the great value of legumes, green manures and composted organic matter for maintaining the crop-producing power of soil.

It is the common practice, handed down from time immemorial, for each farmer to have a compost pit or compost heap on his farm.

Vegetable material of all kinds finds its way into this compost heap. Waste material of the farm, such as straw, stubble clover grown for this purpose, grass, vines, and clovers from the hillsides are all carefully husbanded and composted into manure to feed the crops necessary to support the teeming millions of these ancient peoples.

The manner of making the compost by the oriental farmer is similar to that recently devised in Great Britain, except, of course, there is no patented reagent for use.

The following description by King gives a good idea of the manner of making compost, or synthetic manure, in Japan. "In preparing the stack, materials are brought daily and spread over one side of the compost floor until the pile has attained a height of five feet. After one foot in depth has been laid and firmed, one or two inches of soil or mud is spread over the surface, and the process is repeated until the full height has been attained. Water is added sufficient to keep the whole saturated and to maintain the temperature below that of the body. After the compost stacks have been completed they are permitted to stand five weeks in summer, seven weeks in winter, when they are forked over and transferred to the other side of the house."

The Japanese farmer, instead of using a patented reagent to inoculate his soil, does so by means of garden soil or mud from the canal or ditch. Otherwise the manner of preparing the synthetic manure is similar to that recently proposed in Great Britain. The quantity and composition of this material produced in Japan indicates its great value.

According to the Department of Agriculture, the Japanese farmers in 1908 prepared and applied 22,812,787 tons of compost manufactured from the waste material of the farm together with mud and soil from the canals and ditches. This is sufficient to provide one and seventy-eight-hundredths tons of compost per acre for all the cultivated area of the three main islands of Japan!

Each ton of compost contains 550 pounds of organic matter, fifteen and six-tenths pounds of nitrogen, eight and three-tenths pounds of potassium and five and twenty-four hundredths pounds of phosphorus. This com-

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